

IN THE SPECIFICATION:

Please amend the specification as follows:

Page 12, Line 23, change "die" (1st occur.) to --dice--.

Page 12, Line 23, change "die" (2nd occur.) to --dice--.

Page 12, Line 23, change "die" (3rd occur.) to --dice--.

REMARKS

This Amendment is in response to the Official Action mailed July 9, 1997.

Claims 19, 21-23, and 25-34 remain in the application.

A. 35 U.S.C. § 103(a)

Claims 19, 21-23, 25-29 and 33 - Kuroda and Kuranaga in view of Fogal

Claims 19, 21-23, 25-29 and 33 stand rejected under 35 U.S.C. § 103(a) as being obvious over Japanese Reference 63-179537 published July 23, 1988 attributed to Kuroda ("Kuroda") and Japanese Reference 63-104343 published May 9, 1988 attributed to Kuranaga ("Kuranaga") in view of U.S. Patent 5,323,060 issued June 21, 1994 to Fogal et al. ("Fogal") (Official Action, at pages 2-3). It is not apparent whether Kuroda and Kuranaga are each employed separately as primary references due to the use of the word "and", or are somehow to be combined with each other and with Fogal.

In its rejection, the Official Action rejects method claims 19, 21-23, 25-29 and 33 on the basis of structure only, not on the basis of disclosed-method steps in the references.

To begin with, Kuranaga teaches connecting two chip pairs together. A first set of chips (i.e., chips 1a and 1b) are defined as "[t]he stacked chips of lower stage". A second set of chips (i.e., chips 2a and 2b) are defined as "the stacked chips of upper stage." If one were to glean a method from the five sentences of the constitution portion of the abstract, it would appear that the first set of chips is connected together, followed by connecting the second set of chips together. Lastly, the first set is connected to the second set with "wirings".

Aside from the admitted deficiencies (Official Action, at page 2) of failing to teach a "direct connection between the third chip and the substrate" and failing to teach the use of discrete components in the assembly, Kuranaga does not teach attaching a first chip to a substrate, then attaching a second chip to first chip. The Official Action at page 2 states that "chip 1a can be considered another substrate". The question remains, why should chip 1a be considered another substrate (as defined by Applicant herein - see page 6, lines 12-14). There is no apparent suggestion that the Kuranaga chip 1a is interchangeable with a printed circuit board or leadframe. The reality is that Kuranaga does not teach or suggest the use of a substrate.

The Official Action at page 2 admits that "Kuranaga and Kuroda fail to teach a direct connection between the third chip and the substrate and fail to specifically illustrate discrete components." The Official Action attempts to overcome these deficiencies by combining these references with Fogal. Fogal teaches attaching discrete components to a stacked assembly, but fails to teach a chip mounted face down to the substrate with a chip mounted face up to the face down chip. Kuroda?

Furthermore, Fogal is specific to wire bonding (col.1, lines 6-7, 37-39) and is not concerned with flip-chip attachments. In fact, in the Background of the Invention (col. 1, lines 35-39), Fogal specifically mentions TAB, flip-TAB, and flip-chip attachment, but Fogal rejects these attachment techniques in favor of the wire bonding and stacking technique as disclosed in Fogal.

The Official Action at page 4 states, with regard to this point which was raised in the Applicant's Amendment filed April 15, 1997 in response to the January 15, 1997 Official Action, that the "inventors intended use, while important, is not controlling of the use that one of ordinary skill in the art would have found obvious . . ." The Applicant is somewhat confounded as to what the "intended use" of the device disclosed in the present invention has to do with teaching or suggestion for an obviousness rejection. The point is not what the "intended use" of the device is, but whether Fogal can be properly combined with Kuranaga and Kuroda. It cannot, because it teaches away from the attempted combination. "A reference

should be considered as a whole, and portions arguing against or teaching away from the claimed invention must be considered." (Emphasis added) Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc., 230 USPQ 416 (Fed. Cir. 1986).

Moreover, Kuranaga and Kuroda were published long prior to the filing of the Fogal application. Thus, there could not have been any teaching, suggestion, or motivation within either Kuranaga or Kuroda to include structures as disclosed by Fogal, and Fogal did not exist at that time. Alternately, if the rejection is taken in the order of Fogal in view of Kuranaga and Kuroda, Fogal would have had the teachings of Kuranaga and Kuroda available as prior art. However, Fogal specifically elected not to incorporate the teachings of either Kuranaga or Kuroda to develop a fabrication method as claimed in the present application, but instead relied upon a wire-bond only method. Again, as discussed above, Fogal specifically mentions TAB, flip-TAB, and flip-chip attachment, but nonetheless rejects use of these attachment techniques for the wire bonding and stacking technique disclosed. Thus, the only suggestion or motivation for the combination of references as applied in the Official Action is Applicant's own specification, which constitutes an impermissible hindsight rejection, further explained below.

Therefore, reconsideration and withdrawal of the Section 103(a) rejection of claims 21-29 and 33 are respectfully requested.

Claims 30-32 and 34 - Kuroda and Kuranaga in view of Fogal and further in view of Rostoker and Takiar et al.

Claims 30-32 and 34 stand rejected under 35 U.S.C. § 103(a) as being obvious over Kuroda and Kuranaga in view of Fogal and further in view of U.S. Patent 5,399,898 issued March 21, 1995 to Rostoker ("Rostoker") and U.S. Patent 5,422,435 issued June 6, 1995 to Takiar et al. ("Takiar et al.") (Official Action, at page 5).

The reasoning set forth above in response to the Section 103 rejection of claims 19, 21-23, 25-29 and 33 over Kuroda and Kuranaga in view of Fogal also applies to the present

rejection of claims 30-32 and 34 and are, therefore, incorporated by reference as though it had been repeated in total.

As discussed in the rejection of claims 19, 21-23, 25-29 and 33, neither Kuroda, Kuranaga, nor Fogal provide any teaching, suggestion, or motivation for their attempted combination. Furthermore, neither Rostoker nor Takiar et al. provide any teaching, suggestion, or motivation to combine any of the references in any combination. Rostoker relates only to bridging with flip-chip assemblies. Takiar et al. relates only to bridging wire bonded assemblies. There is no motivation to combine the references with regard to bridging two laterally adjacent face-down chips with one face-up chip to be wire bonded.

Therefore, reconsideration and withdrawal of the Section 103(a) rejection of claims 30-32 and 34 are respectfully requested.

Examiner's Response to Arguments

Usually, the Examiner's responses to arguments are incorporated into the Official Action itself, rather than separately as is the case at page 4 of this Official Action. However, to the extent that Applicant has not addressed the Examiner's concerns within this section, Applicant notes the following:

Paragraph number 4 - In response to the Applicant pointing out that the references are complete and functional in and of themselves, so that there would be no reason to combine parts of the references (stated with regard to no teaching or suggest within the references), the Official Action made a very odd and inaccurate statement of: "it should be remarked that all U.S. patent references are complete and functional under §112." First, it is noted that the two primary references used in all of the rejections are Japanese references and, thus, are not judged by 35 U.S.C. §112. [Second, all U.S. patent references are not necessarily complete and functional under §112, since numerous patents over the years have been invalidated by the courts for failing to comply with §112.] Perhaps Applicant should have stated his position in terms of lack of motivation or suggestion in the various references for their mutual combination, which position has been amplified in the present response.

Paragraph number 5 was addressed above.

Paragraph number 6 - In response to the Applicant pointing out that the Official Action required five references in order to achieve what Applicant concerns to be a hindsight reconstruction, the Official Action stated that "an excessive number of references, reliance on a large number of references in a rejection does not, without more, weigh against the obviousness of the claimed invention" citing In re Gorman, 933 F.2d 982, 18 USPQ2d 1885 (Fed. Cir. 1991). This statement is not a direct quote from Gorman. In fact, Gorman states at 18 USPQ2d 1888 that:

[t]he criterion, however, is not the number of references, but what they would have meant to a person of ordinary skill in the field of the invention. In *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1383, 231 USPQ 81, 93 (Fed. Cir. 1986), cert. denied, 480 U.S. 947 (1987), the court held that a combination of about twenty references that "skirt[ed] all around" claimed invention did not show obviousness.

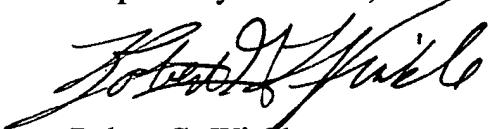
However, perhaps the most important point to be gleaned from the Gorman case appears at 18 USPQ2d 1888 stating:

The extent to which such suggestion must be explicit in, or may be fairly inferred from, the references, is decided on the facts of each case, in light of the prior art and its relationship to the applicant's invention. As in all determinations under 35 U.S.C. §103, the decisionmaker must bring judgment to bear. It is impermissible, however, simply to engage in a hindsight reconstruction of the claimed invention, using the applicant's structure as a template and selecting elements from references to fill the gaps. *Interconnect Planning*, 774 F.2d at 1143, 227 USPQ at 551. The reference themselves must provide some teaching whereby the applicant's combination would have been obvious. (Emphasis added).

That is exactly the Applicant's point in the present case.

In view of the amendments and remarks herewith, the present application is in condition for allowance. Favorable reconsideration of the application and prompt issuance of a Notice of Allowance are earnestly requested.

Respectfully submitted,



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